



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XC153]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Site Characterization Surveys off New Jersey and New York in the area of the Atlantic Shores Lease Area (OCS-A 0541)

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Atlantic Shores Offshore Wind Bight, LLC (Atlantic Shores Bight) to incidentally harass marine mammals during site characterization surveys off New Jersey and New York in the area of Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf Lease Area (OCS-A 0541). There are no changes from the proposed authorization in this final authorization.

DATES: This Authorization is effective August 10, 2022 to August 9, 2023.

FOR FURTHER INFORMATION CONTACT: Jessica Taylor, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable>. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On April 8, 2022, NMFS received a request from Atlantic Shores Bight for an IHA to take marine mammals incidental to marine site characterization survey activities off New Jersey and New York. The application was deemed adequate and complete on May 23, 2022. Atlantic Shores Bight’s request is for take of 15 species of marine mammals by Level B harassment only. Neither Atlantic Shores Bight nor NMFS expect

serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued three IHAs to Atlantic Shores, the parent company of Atlantic Shores Bight, for similar work in a comparable geographic region (85 FR 21198, April 16, 2020; 86 FR 21289, April 22, 2021; 87 FR 24103, April 20, 2022). The 2020 monitoring report confirmed that Atlantic Shores had previously implemented the required mitigation and monitoring, and demonstrated that no impacts of a scale or nature not previously analyzed or authorized had occurred as a result of the activities conducted under the 2020 IHA. At the time of developing this IHA for Atlantic Shores Bight, the Atlantic Shores 2021 (Renewal) monitoring report was not available as the renewal IHA expired on April 19, 2022 (86 FR 21289; April 22, 2021). There are no changes from the proposed IHA to the final IHA.

On August 1, 2022, NMFS announced proposed changes to the existing North Atlantic right whale vessel speed regulations to further reduce the likelihood of mortalities and serious injuries to endangered right whales from vessel collisions, which are a leading cause of the species' decline and a primary factor in an ongoing Unusual Mortality Event (87 FR 46921). Should a final vessel speed rule be issued and become effective during the effective period of this IHA (or any other MMPA incidental take authorization), the authorization holder would be required to comply with any and all applicable requirements contained within the final rule. Specifically, where measures in any final vessel speed rule are more protective or restrictive than those in this or any other MMPA authorization, authorization holders would be required to comply with the requirements of the rule. Alternatively, where measures in this or any other MMPA authorization are more restrictive or protective than those in any final vessel speed rule, the measures in the MMPA authorization would remain in place. These changes would

become effective immediately upon the effective date of any final vessel speed rule and would not require any further action on NMFS's part.

Description of Activity

Overview

As part of its overall marine site characterization survey operations, Atlantic Shores Bight will conduct high-resolution geophysical (HRG) surveys in the Lease Area (OCS)-A 0451 and along potential submarine export cable routes (ECR) to a landfall location in either New York or New Jersey. These two areas are collectively referred to as the survey area. The survey area is approximately 1,375,710 acres (5,567.3 km²) and extends from 11 nautical miles (20 km) offshore of New Jersey and New York out to a maximum distance of approximately 40 nautical miles (74 km).

The purpose of the surveys is to support the site characterization, siting, and engineering design of offshore wind project facilities including wind turbine generators, offshore substations, and submarine cables within the Lease Area and along ECRs. A maximum of three survey vessels may operate at any one time during the surveys. Underwater sound resulting from Atlantic Shores Bight's site characterization survey activities, specifically HRG surveys, has the potential to result in incidental take of marine mammals in the form of behavioral harassment. Atlantic Shores Bight will conduct HRG surveys within the lease area and ECR survey areas over a period of up to 12 months.

Table 1 identifies the representative survey equipment that may be used in support of planned geophysical survey activities. Operational parameters presented in Table 1 were obtained from the following sources: Crocker and Fratantonio (2016); manufacturer specifications; personal communication with manufacturers; agency correspondence; and Atlantic Shores/Atlantic Shores Bight. The make and model of the listed geophysical equipment may vary depending on availability and the final equipment choices will vary

depending upon the final survey design, vessel availability, and survey contractor selection. Geophysical surveys are expected to use several equipment types concurrently in order to collect multiple aspects of geophysical data along one transect. Selection of equipment combinations is based on specific survey objectives. All categories of representative HRG survey equipment shown in Table 1 work with operating frequencies <180 kiloHertz (kHz).

Table 1. Summary of representative equipment specifications with operating frequencies below 180 kHz

| HRG Survey Equipment | Representative Equipment | Operating Frequency Ranges (kHz) | Operational Source Level (dB _{RMS}) | Beamwidth ranges (degrees) | Typical pulse durations RMS ₉₀ (millisecond) | Pulse Repetition Rate (Hz) |
|----------------------|---|----------------------------------|---|----------------------------|---|----------------------------|
| Sparker | Applied Acoustics Dura-Spark 240 [^] | 0.01 to 1.9 | 203 | 180 | 3.4 | 2 |
| | Geo Marine Geo-Source | 0.2 to 5 | 195 | 180 | 7.2 | 0.41 |
| CHIRPs | Edgetech 2000-DSS | 2 to 16 | 195 | 24 | 6.3 | 10 |
| | Edgetech 216 | 2 to 16 | 179 | 17, 20, 0r 24 | 10 | 10 |
| | Edgetech 424 | 4 to 24 | 180 | 71 | 4 | 2 |
| | Edgetech 512i | 0.7 to 12 | 179 | 80 | 9 | 8 |

| | | | | | | |
|--|--|-----------|-----|-----|-----|----|
| | Pangeosubsea Sub- Bottom ImagerTM | 4 to 12.5 | 190 | 120 | 4.5 | 44 |
|--|--|-----------|-----|-----|-----|----|

Note: The operational source level for the Dura-Spark 240 is assigned based on the value closest to the field operational history of the Dura-Spark 240 [operating between 500 – 600 J] found in Table 10 in Crocker and Fratantonio (2016), which reports a 203 dB_{RMS} (decibels root mean square) for 500 J source setting and 400 tips. Because Crocker and Fratantonio (2016) did not provide other source levels for the Dura-Spark 240 near the known operational range, the SIG ELC 820 @750 J at 5m depth assuming an omnidirectional beam width was considered as a proxy or comparison to the Dura-Spark 240. The corresponding 203 dB_{RMS} level is considered a realistic and conservative value that aligns with the history of operations of the Dura-Spark 240 over three years of survey by Atlantic Shores.

The deployment of HRG survey equipment, including the equipment planned for use during Atlantic Shores Bight's activities, produces sound in the marine environment that has the potential to result in harassment of marine mammals. Mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation and Monitoring and Reporting**).

A detailed description of the planned survey is provided in the **Federal Register** notice for the proposed IHA (87 FR 38067; June 27, 2022). Since that time, no changes have been made to Atlantic Shores Bight's planned survey activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to Atlantic Shores Bight was published in the Federal Register on June 27, 2022 (87 FR 38067). This proposed notice described, in detail, Atlantic Shores Bight's activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA, and requested that interested persons submit relevant information, suggestions, and comments. This proposed notice was available for a 30-day public comment period.

During the 30-day public comment period, NMFS received letters from two environmental non-governmental organizations (eNGOs) (Oceana, Inc. and Clean Ocean Action (COA)). All comments, and NMFS' responses, are provided below, and the letters are available online at: <https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-bight-llc-marine-site>. Please review the letters for full details regarding the comments and underlying justification.

Comment 1: Oceana objects to NMFS' renewal process regarding the extension of any one-year IHA with a truncated 15-day public comment period, and suggested an additional 30-day public comment period is necessary for any renewal request.

Response: NMFS' IHA renewal process meets all statutory requirements. In prior responses to comments about IHA renewals (*e.g.*, 84 FR 52464; October 2, 2019 and 85 FR 53342, August 28, 2020), NMFS has explained how the renewal process, as implemented, is consistent with the statutory requirements contained in section 101(a)(5)(D) of the MMPA, and further, promotes NMFS' goals of improving conservation of marine mammals and increasing efficiency in the MMPA compliance process. Therefore, we intend to continue implementing the renewal process.

In particular, we emphasize that any Renewal IHA does have a 30-day public comment period, and in fact, each Renewal IHA is made available for a 45-day public comment period. The notice of the proposed IHA published in the **Federal Register** on June 27, 2022 (87 FR 38067) made clear that NMFS was seeking comment on the proposed IHA and the potential issuance of a renewal for this survey. As detailed in the **Federal Register** notice for the proposed IHA and on the agency's website, any renewal is limited to another year of identical or nearly identical activities in the same location or the same activities that were not completed within the 1-year period of the initial IHA. NMFS' analysis of the anticipated impacts on marine mammals caused by the applicant's activities covers both the Initial IHA period and the possibility of a 1 year

renewal. Therefore a member of the public considering commenting on a proposed Initial IHA also knows exactly what activities (or subset of activities) would be included in a proposed Renewal IHA, the potential impacts of those activities, the maximum amount and type of take that could be caused by those activities, the mitigation and monitoring measures that would be required, and the basis for the agency's negligible impact determinations, least practicable adverse impact findings, small numbers findings, and (if applicable) the no unmitigable adverse impact on subsistence use finding -- all the information needed to provide complete and meaningful comments on a possible renewal at the time of considering the proposed Initial IHA. Reviewers have the information needed to meaningfully comment on both the immediate proposed IHA and a possible 1-year renewal, should the IHA holder choose to request one.

While there would be additional documents submitted with a renewal request, for a qualifying renewal these would be limited to documentation that NMFS would make available and use to verify that the activities are identical to those in the initial IHA, are nearly identical such that the changes would have either no effect on impacts to marine mammals or decrease those impacts, or are a subset of activities already analyzed and authorized but not completed under the initial IHA. NMFS would also need to confirm, among other things, that the activities would occur in the same location; involve the same species and stocks; provide for continuation of the same mitigation, monitoring, and reporting requirements; and that no new information has been received that would alter the prior analysis. The renewal request would also contain a preliminary monitoring report, in order to verify that effects from the activities do not indicate impacts of a scale or nature not previously analyzed. The additional 15-day public comment period, which includes NMFS' direct notice to anyone who commented on the proposed Initial IHA, provides the public an opportunity to review these few documents, provide any additional pertinent information and comment on whether they think the criteria for a renewal have

been met. Between the initial 30-day comment period on these same activities and the additional 15 days, the total comment period for a renewal is 45 days.

In addition to the IHA renewal process being consistent with all requirements under section 101(a)(5)(D), it is also consistent with Congress' intent for issuance of IHAs to the extent reflected in statements in the legislative history of the MMPA. Through the provision for renewals in the regulations, description of the process and express invitation to comment on specific potential renewals in the Request for Public Comments section of each proposed IHA, the description of the process on NMFS' website, further elaboration on the process through responses to comments such as these, posting of substantive documents on the agency's website, and provision of 30 or 45 days for public review and comment on all proposed initial IHAs and Renewals respectively, NMFS has ensured that the public is “invited and encouraged to participate fully in the agency's decision-making process”, as Congress intended.

Comment 2: Oceana stated that NMFS must utilize the best available science, and suggested that NMFS has not done so, specifically referencing information regarding the North Atlantic right whale (NARW) such as updated population estimates, habitat usage in the survey area, and seasonality information. Oceana specifically asserted that NMFS is not using the best available science with regards to the NARW population estimate and state that NMFS should be using the estimate of 336 individuals presented by the New England Aquarium (https://www.neaq.org/about-us/news-media/press-kit/press-releases/population-of-north-atlantic-right-whales-continues-its-downward-trajectory/?fbclid=IwAR3VJcauSifygKxU4ZICau0Cd_fo2t4KU6RSJK7WSmkGRLYLGHpjz1_WkY).

Response: While NMFS agrees that the best available science should be used for assessing NARW abundance estimates, we disagree that the New England Aquarium site represents the most recent and best available estimate for NARW abundance. Rather the

revised abundance estimate (368; 95 percent with a confidence interval of 356-378) published by Pace (2021) (and subsequently included in the 2021 Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>)), which was used in the proposed IHA, provides the most recent and best available estimate, and introduced improvements to NMFS' right whale abundance model. Specifically, Pace (2021) looked at a different way of characterizing annual estimates of age-specific survival. NMFS considered all relevant information regarding North Atlantic right whale, including the information cited by the commenters. However, NMFS relies on the SAR. Recently (after publication of the notice of proposed IHA), NMFS updated its species web page to recognize the population estimate for NARW is now below 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>). We anticipate that this information will be presented in the draft 2022 SAR. We note that this change in abundance estimate would not change the estimated take of NARW or authorized take numbers, nor affect our ability to make the required findings under the MMPA for Atlantic Shores Bight's survey activities.

NMFS further notes that Oceana's comment seems to be conflating the phrase "best available data" with "the most recent data." The MMPA specifies that the "best available data" must be used, which does not always mean the most recent. As is NMFS' prerogative, we referenced the best available NARW abundance estimate of 368 from the 2021 SARs as NMFS' determination of the best available data that we relied on in our analysis. The Pace (2021) results strengthened the case for a change in mean survival rates after 2010-2011, but did not significantly change other current estimates (population size, number of new animals, adult female survival) derived from the model. Furthermore, NMFS notes that the SARs are peer reviewed by other scientific review groups prior to being finalized and published and that the New England Aquarium site referenced by the commenter does not undertake this process.

NMFS considered the best available science regarding both recent habitat usage patterns for the study area and up-to-date seasonality information in the notice of the proposed IHA, including consideration of existing biologically important area (BIAs) and densities provided by Roberts *et al.* (2021). While the commenter has suggested that NMFS consider best available information for recent habitat usage patterns and seasonality, it has not offered any additional information which it suggests should be considered best available information in place of what NMFS considered in its notice of proposed IHA (87 FR 38067; June 27, 2022).

Lastly, as we stated in the notice of proposed IHA (87 FR 38067; June 27, 2022), any impacts to marine mammals are expected to be temporary and minor and, given the relative size of the survey area compared to the overall migratory route leading to foraging habitat (which is not affected by the specified activity). Comparatively, the survey area is extremely small (approximately 5,567.3 km²) compared to the size of the NARW migratory BIA (269,448 km²). Because of this, and in context of the minor, low-level nature of the impacts expected to result from the planned survey, such impacts are not expected to result in disruption to biologically important behaviors.

Comment 3: Oceana noted that chronic stressors are an emerging concern for NARW conservation and recovery, and stated that chronic stress may result in energetic effects for NARW. Oceana suggested that NMFS has not fully considered both the use of the area and the effects of both acute and chronic stressors on the health and fitness of NARW, as disturbance responses in NARW could lead to chronic stress or habitat displacement, leading to an overall decline in their health and fitness.

Response: NMFS agrees with Oceana that both acute and chronic stressors are of concern for NARW conservation and recovery. We recognize that acute stress from acoustic exposure is one potential impact of these surveys, and that chronic stress can have fitness, reproductive, etc. impacts at the population-level scale. NMFS has carefully

reviewed the best available scientific information in assessing impacts to marine mammals, and recognizes that the surveys have the potential to impact marine mammals through behavioral effects, stress responses, and auditory masking. However, NMFS does not expect that the generally short-term, intermittent, and transitory marine site characterization survey activities planned by Atlantic Shores Bight will create conditions of acute or chronic acoustic exposure leading to long-term physiological stress responses in marine mammals. NMFS has also prescribed a robust suite of mitigation measures, including extended distance shutdowns for NARW, that are expected to further reduce the duration and intensity of acoustic exposure, while limiting the potential severity of any possible behavioral disruption. The potential for chronic stress was evaluated in making the determinations presented in NMFS' negligible impact analyses. Because NARW generally use this location in a transitory manner, specifically for migration, any potential impacts from these surveys are lessened for other behaviors due to the brief periods where exposure is possible. In context of these expected low-level impacts, which are not expected to meaningfully affect important behavior, we also refer again to the large size of the migratory corridor compared with the survey area (the overlap between the BIA and the proposed survey area will cover approximately 5,567.3 km² of the 269,448 km² BIA). Thus, the transitory nature of NARW at this location means it is unlikely for any exposure to cause chronic effects, as Atlantic Shores Bight's planned survey area and ensonified zones are much smaller than the overall migratory corridor. As such, NMFS does not expect acute or cumulative stress to be a detrimental factor to NARW from Atlantic Shores Bight's described survey activities.

Lastly, NMFS disagrees that the effects of Atlantic Shores Bight's survey may contribute to stunted growth rates as suggested by Oceana's comments. The activities associated with Atlantic Shores Bight's survey are outside the scope of activities

described in the Stewart *et al.* (2022) paper and NMFS does not expect impacts such as these to result from Atlantic Shores Bight's described survey activities.

Comment 4: Oceana and COA asserted that NMFS must fully consider the discrete effects of each activity and the cumulative effects of the suite of approved, proposed and potential activities on marine mammals and NARW in particular and ensure that the cumulative effects are not excessive before issuing or renewing an IHA.

Response: Neither the MMPA nor NMFS' codified implementing regulations call for consideration of other unrelated activities and their impacts on populations. The preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989) states in response to comments that the impacts from other past and ongoing anthropogenic activities are to be incorporated into the negligible impact analysis via their impacts on the baseline. Consistent with that direction, NMFS has factored into its negligible impact analysis the impacts of other past and ongoing anthropogenic activities via their impacts on the baseline, e.g., as reflected in the density/distribution and status of the species, population size and growth rate, and other relevant stressors. The 1989 final rule for the MMPA implementing regulations also addressed public comments regarding cumulative effects from future, unrelated activities. There NMFS stated that such effects are not considered in making findings under section 101(a)(5) concerning negligible impact. In this case, this IHA, as well as other IHAs currently in effect or proposed within the specified geographic region, are appropriately considered an unrelated activity relative to the others. The IHAs are unrelated in the sense that they are discrete actions under section 101(a)(5)(D), issued to discrete applicants.

Section 101(a)(5)(D) of the MMPA requires NMFS to make a determination that the take incidental to a "specified activity" will have a negligible impact on the affected species or stocks of marine mammals. NMFS' implementing regulations require applicants to include in their request a detailed description of the specified activity or

class of activities that can be expected to result in incidental taking of marine mammals. 50 CFR 216.104(a)(1). Thus, the “specified activity” for which incidental take coverage is being sought under section 101(a)(5)(D) is generally defined and described by the applicant. Here, Atlantic Shores Bight was the applicant for the IHA, and we are responding to the specified activity as described in that application (and making the necessary findings on that basis).

Through the response to public comments in the 1989 implementing regulations, NMFS also indicated (1) that we would consider cumulative effects that are reasonably foreseeable when preparing a NEPA analysis, and (2) that reasonably foreseeable cumulative effects would also be considered under section 7 of the Endangered Species Act (ESA) for ESA-listed species, as appropriate. Accordingly, NMFS has written Environmental Assessments (EA) that addressed cumulative impacts related to substantially similar activities, in similar locations, *e.g.*, the 2017 Ocean Wind, LLC EA for site characterization surveys off New Jersey. Cumulative impacts regarding issuance of IHAs for site characterization survey activities such as those planned by Atlantic Shores Bight have been adequately addressed under NEPA in prior environmental analyses that support NMFS' determination that this action is appropriately categorically excluded from further NEPA analysis. NMFS independently evaluated the use of a categorical exclusion (CE) for issuance of Atlantic Shores Bight's IHA, which included consideration of extraordinary circumstances.

Separately, the cumulative effects of substantially similar activities in the northwest Atlantic Ocean have been analyzed in the past under section 7 of the ESA when NMFS has engaged in formal intra-agency consultation, such as the 2013 programmatic Biological Opinion for BOEM Lease and Site Assessment Rhode Island, Massachusetts, New York, and New Jersey Wind Energy Areas (<https://repository.library.noaa.gov/view/noaa/29291>). Analyzed activities include those

for which NMFS issued previous IHAs (82 FR 31562; July 7, 2017, 85 FR 21198; April 16, 2020, and 86 FR 26465; May 10, 2021), which are similar to those planned by Atlantic Shores Bight under this current IHA request. This Biological Opinion determined that NMFS' issuance of IHAs for site characterization survey activities associated with leasing, individually *and* cumulatively, are not likely to adversely affect listed marine mammals. NMFS notes that, while issuance of this IHA is covered under a different consultation, this Biological Opinion remains valid.

Comment 5: Oceana states that NMFS must make an assessment of which activities, technologies and strategies are truly necessary to achieve site characterization to inform development of the offshore wind projects and which are not critical, asserting that NMFS should prescribe the appropriate survey techniques. In general, Oceana stated that NMFS must require that all IHA applicants minimize the impacts of underwater noise to the fullest extent feasible, including through the use of best available technology and methods to minimize sound levels from geophysical surveys such as through the use of technically and commercially feasible and effective noise reduction and attenuation measures.

Response: The MMPA requires that an IHA include measures that will effect the least practicable adverse impact on the affected species and stocks and, in practice, NMFS agrees that the IHA should include conditions for the survey activities that will first avoid adverse effects on NARW in and around the survey site, where practicable, and then minimize the effects that cannot be avoided. NMFS has determined that the IHA meets this requirement to effect the least practicable adverse impact. As part of the analysis for all marine site characterization survey IHAs, NMFS evaluated the effects expected as a result of the specified activity, made the necessary findings, and prescribed mitigation requirements sufficient to achieve the least practicable adverse impact on the affected species and stocks of marine mammals. It is not within NMFS' purview to make

judgments regarding what may be appropriate techniques or technologies for an operator's survey objectives.

Comment 6: Oceana suggests that Protected Species Observer (PSOs) complement their survey efforts using additional technologies, such as infrared detection devices when in low-light conditions.

Response: NMFS agrees with Oceana regarding this suggestion and a requirement to utilize a thermal (infrared) device during low-light conditions was included in the proposed **Federal Register** notice. That requirement is included as a requirement of the issued IHA.

Comment 7: Oceana recommended that NMFS restrict all vessels of all sizes associated with the proposed survey activities to speeds less than 10 knots (kn) at all times due to the risk of vessel strikes to NARW and other large whales.

Response: While NMFS acknowledges that vessel strikes can result in injury or mortality, we have analyzed the potential for vessel strike resulting from Atlantic Shores Bight's activity and have determined that based on the nature of the activity and the required mitigation measures specific to vessel strike avoidance included in the IHA, potential for vessel strike is so low as to be discountable. The required mitigation measures, all of which were included in the proposed IHA and are now required in the final IHA, include: A requirement that all vessel operators comply with 10 knots (kn) (18.5 kilometer/hour (km/hour)) or less speed restrictions in any Seasonal Management Areas (SMA), Dynamic Management Areas (DMA) or Slow Zone while underway, and check daily for information regarding the establishment of mandatory or voluntary vessel strike avoidance areas (SMAs, DMAs, Slow Zones) and information regarding NARW sighting locations; a requirement that all vessels greater than or equal to 19.8 m in overall length operating from November 1 through April 30 operate at speeds of 10 kn (18.5 km/hour) or less; a requirement that all vessel operators reduce vessel speed to 10 kn

(18.5 km/hour) or less when any large whale, any mother/calf pairs, pods, or large assemblages of non-delphinid cetaceans are observed near the vessel; a requirement that all survey vessels maintain a separation distance of 500 m or greater from any ESA-listed whales or other unidentified large marine mammals visible at the surface while underway; a requirement that, if underway, vessels must steer a course away from any sighted ESA-listed whale at 10 kn (18.5 km/hr) or less until the 500 m minimum separation distance has been established; a requirement that, if an ESA-listed whale is sighted in a vessel's path, or within 500 m of an underway vessel, the underway vessel must reduce speed and shift the engine to neutral; a requirement that all vessels underway must maintain a minimum separation distance of 100 m from all non-ESA-listed baleen whales; and a requirement that all vessels underway must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel). We have determined that the vessel strike avoidance measures in the IHA are sufficient to ensure the least practicable adverse impact on species or stocks and their habitat. Furthermore, no documented vessel strikes have occurred for any marine site characterization surveys which were issued IHAs from NMFS during the survey activities themselves or while transiting to and from survey sites.

Comment 8: Oceana suggests that NMFS require vessels maintain a separation distance of at least 500 m from NARW at all times.

Response: NMFS agrees with Oceana regarding this suggestion and a requirement to maintain a separation distance of at least 500 m from NARW at all times was included in the proposed **Federal Register** notice and was included as a requirement in the issued IHA.

Comment 9: Oceana recommended that the IHA should require all vessels supporting site characterization to be equipped with and using Class A Automatic Identification System (AIS) devices at all times while on the water. Oceana suggested this requirement should apply to all vessels, regardless of size, associated with the survey.

Response: NMFS is generally supportive of the idea that vessels involved with survey activities be equipped with and using Class A Automatic Identification System (devices) at all times while on the water. Indeed, there is a precedent for NMFS requiring such a stipulation for geophysical surveys in the Atlantic Ocean (38 FR 63268, December 7, 2018); however, these activities carried the potential for much more significant impacts than the marine site characterization surveys to be carried out by Atlantic Shores Bight, with the potential for both Level A and Level B harassment take. Given the small isopleths and small numbers of take authorized by this IHA, NMFS does not agree that the benefits of requiring AIS on all vessels associated with the survey activities outweighs and warrants the cost and practicability issues associated with this requirement.

Comment 10: Oceana asserts that the IHA must include requirements to hold all vessels associated with site characterization surveys accountable to the IHA requirements, including vessels owned by the developer, contractors, employees, and others regardless of ownership, operator, and contract. They state that exceptions and exemptions will create enforcement uncertainty and incentives to evade regulations through reclassification and re-designation. They recommend that NMFS simplify this by requiring all vessels to abide by the same requirements, regardless of size, ownership, function, contract or other specifics.

Response: NMFS agrees with Oceana and required these measures in the proposed IHA and final IHA. The IHA requires that a copy of the IHA must be in the possession of Atlantic Shores Bight, the vessel operators, the lead PSO, and any other

relevant designees of Atlantic Shores Bight operating under the authority of this IHA. The IHA also states that Atlantic Shores Bight must ensure that the vessel operator and other relevant vessel personnel, including the PSO team, are briefed on all responsibilities, communication procedures, marine mammal monitoring protocols, operational procedures, and IHA requirements prior to the start of survey activity, and when relevant new personnel join the survey operations.

Comment 11: Oceana stated that the IHA must include a requirement for all phases of the site characterization to subscribe to the highest level of transparency, including frequent reporting to Federal agencies. Oceana recommends requirements to report all visual and acoustic detections of NARW and any dead, injured, or entangled marine mammals to NMFS or the Coast Guard as soon as possible and no later than the end of the PSO shift. Oceana states that to foster stakeholder relationships and allow public engagement and oversight of the permitting, the IHA should require all reports and data to be accessible on a publicly available website.

Response: NMFS agrees with the need for reporting and indeed, the MMPA calls for IHAs to incorporate reporting requirements. As included in the proposed IHA, the final IHA includes requirements for reporting that supports Oceana's recommendations.

Further, the draft IHA and final IHA stipulate that if a NARW is observed at any time by any survey vessels, during surveys or during vessel transit, Atlantic Shores Bight must immediately report sighting information to the NMFS NARW Sighting Advisory System within two hours of occurrence, when practicable, or no later than 24 hours after occurrence. Atlantic Shores Bight may also report the sighting to the U.S. Coast Guard. Additionally, Atlantic Shores Bight must report any discoveries of injured or dead marine mammals to the Office of Protected Resources, NMFS, and to the New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. This includes entangled

animals. All reports and associated data submitted to NMFS are included on the website for public inspection.

Daily visual and acoustic detections of NARW and other large whale species along the Eastern Seaboard, as well as Slow Zone locations, are publicly available on WhaleMap (<https://whalemap.org/WhaleMap/>). Further, recent acoustic detections of NARW and other large whale species are available to the public on NOAA's Passive Acoustic Cetacean Map website <https://apps-nefsc.fisheries.noaa.gov/pacm/#/narw>.

Comment 12: Oceana recommends a shutdown requirement if a NARW or other ESA-listed species is detected in the clearance zone as well as a publicly available explanation of any exemptions as to why the applicant would not be able to shut down in these situations.

NMFS reiterates that use of the planned sources is not expected to have any potential to cause injury of any species, including North Atlantic right whale, even in the absence of mitigation. Consideration of the anticipated effectiveness of the mitigation measures (*i.e.*, exclusion zones and shutdown measures) discussed below and in the Mitigation section of this notice further strengthens the conclusion that injury is not a reasonably anticipated outcome of the survey activity. Nevertheless, there are several shutdown requirements described in the **Federal Register** notice of the proposed IHA (87 FR 38067; July 27, 2022), and which are included in the final IHA, including the stipulation that geophysical survey equipment must be immediately shut down if any marine mammal is observed within or entering the relevant shutdown zone while geophysical survey equipment is operational. There is no exemption for the shutdown requirement for NARW and ESA-listed species.

Atlantic Shores Bight is required to implement a 30-minute pre-start clearance period prior to the initiation of ramp-up of specified HRG equipment. During this period, clearance zones will be monitored by the PSOs, using the appropriate visual technology.

Ramp-up may not be initiated if any marine mammal(s) is within its respective clearance zone. If a marine mammal is observed within an clearance zone during the pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective exclusion zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals, and 30 minutes for all other species). If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up if PSOs have maintained constant observation and no detections of any marine mammal have occurred within the respective exclusion zones.

Comment 13: Oceana recommended increasing the clearance zone to 1,000 m for NARW with requirements for HRG survey vessels to use PSOs and Passive Acoustic Monitoring (PAM) to establish and monitor these zones.

Response: NMFS notes that the 500 m Exclusion Zone for NARW exceeds the modeled distance to the largest 160 dB Level B harassment isopleth (141 m during sparker use) by a conservative margin to be extra cautious. Commenters do not provide a compelling rationale for why the clearance zone should be even larger. Given that these surveys are relatively low impact and that, regardless, NMFS has prescribed a precautionary NARW Exclusion Zone that is larger (500 m) than the conservatively estimated largest harassment zone (141 m), NMFS has determined that the clearance zone is appropriate.

Regarding the use of acoustic monitoring to implement the clearance zones, NMFS does not anticipate that acoustic monitoring would be effective for a variety of reasons discussed below and therefore has not required it in this IHA. As described in the **Mitigation** section, NMFS has determined that the prescribed mitigation requirements are sufficient to effect the least practicable adverse impact on all affected species or stocks.

The commenters do not explain why they expect that PAM would be effective in detecting vocalizing mysticetes, nor does NMFS agree that this measure is warranted, as it is not expected to be effective for use in detecting the species of concern. It is generally accepted that, even in the absence of additional acoustic sources, using a towed passive acoustic sensor to detect baleen whales (including NARW) is not typically effective because the noise from the vessel, the flow noise, and the cable noise are in the same frequency band and will mask the vast majority of baleen whale calls. Vessels produce low-frequency noise, primarily through propeller cavitation, with main energy in the 5-300 Hertz (Hz) frequency range. Source levels range from about 140 to 195 decibel (dB) re 1 μ Pa (micropascal) at 1 m (NRC, 2003; Hildebrand, 2009), depending on factors such as ship type, load, and speed, and ship hull and propeller design. Studies of vessel noise show that it appears to increase background noise levels in the 71-224 Hz range by 10-13 dB (Hatch *et al.* 2012; McKenna *et al.* 2012; Rolland *et al.* 2012). PAM systems employ hydrophones towed in streamer cables approximately 500 m behind a vessel. Noise from water flow around the cables and from strumming of the cables themselves is also low frequency and typically masks signals in the same range. Experienced PAM operators participating in a recent workshop (Thode *et al.* 2017) emphasized that a PAM operation could easily report no acoustic encounters, depending on species present, simply because background noise levels rendered any acoustic detection impossible. The same workshop report stated that a typical eight-element array towed 500 m behind a vessel could be expected to detect delphinids, sperm whales, and beaked whales at the required range, but not baleen whales, due to expected background noise levels (including seismic noise, vessel noise, and flow noise).

There are several additional reasons why we do not agree that use of PAM is warranted for 24-hour HRG surveys. While NMFS agrees that PAM can be an important tool for augmenting detection capabilities in certain circumstances, its utility in further

reducing impact during HRG survey activities is limited. First, for this activity, the area expected to be ensonified above the Level B harassment threshold is relatively small (a maximum of 141 m); this reflects the fact that, to start with, the source level is comparatively low and the intensity of any resulting impacts would be lower level and, further, it means that inasmuch as PAM will only detect a portion of any animals exposed within a zone, the overall probability of PAM detecting an animal in the harassment zone is low. Together these factors support the limited value of PAM for use in reducing take with smaller zones. PAM is only capable of detecting animals that are actively vocalizing, while many marine mammal species vocalize infrequently or during certain activities, which means that only a subset of the animals within the range of the PAM would be detected (and potentially have reduced impacts). Additionally, localization and range detection can be challenging under certain scenarios. For example, odontocetes are fast moving and often travel in large or dispersed groups which makes localization difficult.

Given that the effects to marine mammals from the types of surveys authorized in this IHA are expected to be limited to low level behavioral harassment even in the absence of mitigation, the limited additional benefit anticipated by adding this detection method (especially for NARW and other low frequency cetaceans, species for which PAM has limited efficacy), and the cost and impracticability of implementing a full-time PAM program, we have determined the current requirements for visual monitoring are sufficient to ensure the least practicable adverse impact on the affected species or stocks and their habitat. NMFS has previously provided discussions on why PAM isn't a required monitoring measure during HRG survey IHAs in past **Federal Register** notices (see 86 FR 21289, April 22, 2021 and 87 FR 13975, March 11, 2022 for examples).

Comment 14: Oceana recommended that when HRG surveys are allowed to resume after a shutdown event, the surveys should be required to use a ramp-up procedure to encourage any nearby marine life to leave the area.

Response: NMFS agrees with this recommendation and included in the **Federal Register** notice of the proposed IHA (87 FR 38067; June 27, 2022) and this final IHA a stipulation that when technically feasible, survey equipment must be ramped up at the start or restart of survey activities. A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source when technically feasible. Operators should ramp up sources to half power for 5 minutes and then proceed to full power. A 30-minute pre-start clearance observation period must occur prior to the start of ramp-up (or initiation of source use if ramp-up is not technically feasible). NMFS notes that ramp-up is not required for short periods where acoustic sources were shut down (*i.e.*, less than 30 minutes) if PSOs have maintained constant visual observation and no detections of marine mammals occurred within the applicable clearance zones.

Comment 15: COA does not agree with NMFS' negligible impact determination for NARW and states that NMFS provides an inaccurate characterization of impacts to NARW.

Response: NMFS disagrees with the COA's position regarding the negligible impact analysis, and they do not provide a reasoned basis for finding that the effects of the specified activity would be greater than negligible on NARW. The Negligible Impact Analysis and Determination section of the proposed IHA (87 FR 38067; June 27, 2022) provides a detailed qualitative discussion supporting NMFS' determination that any anticipated impacts from this action would be negligible. The section contains a number of factors that were considered by NMFS based on the best available scientific data and why we concluded that impacts resulting from the specified activity are not reasonably

expected to, or reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

With specific regard to NARW, we note that take is authorized for only a very small percentage of the right whale population (see Table 9). However, the numbers of potential incidents of take or animals taken are only part of an assessment and are not, alone, decisively indicative of the degree of impact. In order to adequately evaluate the effects of noise exposure at the population level, the total number of take incidents must be further interpreted in context of relevant biological and population parameters and other biological, environmental, and anthropogenic factors and in a spatially and temporally explicit manner. The effects to individuals of a “take” are not necessarily equal. Some take events represent exposures that only just exceed a Level B harassment threshold, which would be expected to result in lower-level impacts, while other exposures occur at higher received levels and would typically be expected to have comparatively greater potential impacts on an individual. Further, responses to similar received levels may result in significantly different impacts on an individual dependent upon the context of the exposure or the status of the individuals (*e.g.*, if it occurred in an area and time where concentrated feeding was occurring, or to individuals weakened by other effects). In this case, NMFS reiterates that no such higher level takes are expected to occur. The maximum anticipated Level B harassment zone is 141 m, a distance smaller than the precautionary shutdown zone of 500 m. To the extent that any exposure of NARW does occur, it would be expected to result in lower-level impacts that are unlikely to result in significant or long-lasting impacts to the exposed individual and, given the relatively small amount of exposures expected to occur, it is unlikely that these exposures would result in population-level impacts. NMFS acknowledges that impacts of a similar degree on a proportion of the individuals in a stock may have differing impacts to the stock based on its status, *i.e.*, smaller stocks may be less able to absorb deaths or

reproductive suppression and maintain similar growth rates as larger stocks. However, even given the precarious status of the NARW, the low-level nature of the impacts expected to occur from this action and the small number of individuals affected supports NMFS' determination that population-level impacts will not occur. The commenters provide no substantive reasoning to contradict this finding, and do not support their assertions of effects greater than NMFS has assumed may occur.

Comment 16: COA is concerned that habitat displacement could significantly increase the risk of ship-strike to NARW from outside the survey area.

Response: NMFS does not anticipate that NARW would be displaced from the area where Atlantic Shores Bight's marine site characterization surveys would occur, and COA does not provide evidence that this effect should be a reasonably anticipated outcome of the specified activity. Similarly, NMFS is not aware of any scientific information suggesting that the survey activity would drive marine mammals into shipping lanes, and disagrees that this would be a reasonably anticipated effect of the specified activities. The take by Level B harassment authorized by NMFS is precautionary but considered unlikely, as NMFS' take estimation process does not account for the use of extremely precautionary mitigation measures, *e.g.*, the requirement for Atlantic Shores Bight to implement a shutdown zone that is more than three times as large as the estimated harassment zone. These requirements are expected to largely eliminate the actual occurrence of Level B harassment events and, to the extent that harassment does occur, would minimize the duration and severity of any such events. Therefore, even if a NARW was in the area of the cable corridor surveys, a displacement impact is not anticipated.

Although the primary stressor to marine mammals from the specified activities is acoustic exposure to the sound source, NMFS takes seriously the risk of vessel strike and has prescribed measures sufficient to avoid the potential for ship strike to the extent

practicable. NMFS has required these measures despite a very low likelihood of vessel strike; vessels associated with the survey activity will add a discountable amount of vessel traffic to the specific geographic region and, furthermore, vessels towing survey gear travel at very slow speeds (*i.e.*, roughly 4-5 kn; 7.4-9.3 km/h).

Comment 17: COA asserted that NMFS is overestimating the population abundance for NARW.

Response: NMFS agrees that the most up to date population estimate should be used for assessing NARW abundance estimates. The revised abundance estimate (368; 95 percent with a confidence interval of 356-378) published by Pace (2021) (and subsequently included in the 2021 Stock Assessment Reports (SARs;

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>)), which was used in the proposed IHA, provides the most recent and best available estimate, and introduced improvements to NMFS' right whale abundance model. Specifically, Pace (2021) looked at a different way of characterizing annual estimates of age-specific survival. NMFS considered all relevant information regarding NARW, including the information cited by the commenters. However, NMFS relies on the SAR. Recently, NMFS updated its species web page to recognize the population estimate for NARW is now below 350 animals

(<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>), as COA mentioned.

We anticipate that this information will be presented in the draft 2022 SAR. We note that this change in abundance estimate would not change the estimated take of NARW or authorized take numbers, nor affect our ability to make the required findings under the MMPA for Atlantic Shores Bight's survey activities.

As stated above, NMFS notes that the MMPA specifies that the “best available data” must be used, which does not always mean the most recent. As is NMFS' prerogative, we referenced the best available NARW abundance estimate of 368 from the

2021 SARs as NMFS' determination of the best available data that we relied on in our analysis. The Pace (2021) results strengthened the case for a change in mean survival rates after 2010-2011, but did not significantly change other current estimates (population size, number of new animals, adult female survival) derived from the model.

Lastly, as we stated previously and in the notice of proposed IHA (87 FR 38067; June 27, 2022), any impacts to marine mammals are expected to be temporary and minor and, given the relative size of the survey area compared to the overall migratory route and foraging habitat (which is not affected by the specified activity). The survey area is small (approximately 5,567.3 km² total area) compared to the size of the NARW migratory BIA (269,448 km²). Because of this, and in context of the minor, low-level nature of the impacts expected to result from the planned survey, such impacts are not expected to result in disruption to biologically important behaviors.

Comment 18: Oceana states that Atlantic Shores Bight's activities will increase vessel traffic in and around the project area and that the IHA must include a vessel traffic plan to minimize the effects of increased vessel traffic.

Response: NMFS disagrees with Oceana's statement that the IHA must require a vessel traffic plan. During HRG surveys there are no service vessels required. NMFS agrees that a vessel plan may be potentially appropriate for project construction, but it is not needed for marine site characterization surveys.

Comment 19: COA is concerned regarding the number of harbor seals that could be impacted by the activities, as well as a lack of baseline data being available for harbor seals off New Jersey.

Response: We appreciate the concern expressed by COA. NMFS utilizes the best available science when analyzing which species may be impacted by an applicant's proposed activities. Based on information found in the scientific literature, as well as based on density models developed by Duke University, all marine mammal species

included in the proposed **Federal Register** notice have some likelihood of occurring in Atlantic Shores Bight's survey area. Furthermore, the MMPA requires us to evaluate the effects of the specified activities in consideration of the best scientific evidence available and, if the necessary findings are made, to issue the requested take authorization. The MMPA does not allow us to delay decision making in hopes that additional information may become available in the future.

Regarding the lack of baseline information cited by COA, with specific concern pointed out for harbor seals, NMFS points towards two sources of information for marine mammal baseline information: the Ocean/Wind Power Ecological Baseline Studies, January 2008 - December 2009 completed by the New Jersey Department of Environmental Protection in July 2010 (<https://dspace.njstatelib.org/xmlui/handle/10929/68435>) and the Atlantic Marine Assessment Program for Protected Species (AMAPPS; <https://www.fisheries.noaa.gov/new-england-mid-atlantic/population-assessments/atlantic-marine-assessment-program-protected>) with annual reports available from 2010 to 2020 (<https://www.fisheries.noaa.gov/resource/publication-database/atlantic-marine-assessment-program-protected-species>) that cover the areas across the Atlantic Ocean. NMFS has duly considered this and all available information.

Based on the information presented, NMFS has determined that no new information has become available, nor do the commenters present additional information, that would change our determinations since the publication of the proposed notice.

Changes from the Proposed IHA to Final IHA

NMFS considered all public comments received and determined that no changes to the final IHA were necessary.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, incorporated here by reference, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS' website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species or stocks for which take is expected and authorized for this action, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or authorized, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. 2021 U.S. Atlantic

and Gulf of Mexico SARs. All values presented in Table 2 are the most recent available at the time of publication and are available in the 2021 SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

Table 2. Species Likely Impacted by the Specified Activities

| Common Name | Scientific Name | Stock | ESA/MMPA status; strategic (Y/N) ¹ | Stock abundance (CV, N _{min} , most recent abundance survey) ² | PBR | Annual M/SI ³ |
|--|-------------------------------|------------------------|---|--|-----|--------------------------|
| <i>Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)</i> | | | | | | |
| North Atlantic right whale | <i>Eubalaena glacialis</i> | Western Atlantic | E/D, Y | 368 (0; 364; 2019) ⁵ | 0.7 | 7.7 |
| Humpback whale | <i>Megaptera novaeangliae</i> | Gulf of Maine | -/-, Y | 1,396 (0; 1,380; 2016) | 22 | 12.15 |
| Fin whale | <i>Balaenoptera physalus</i> | Western North Atlantic | E/D, Y | 6,802 (0.24; 5,573; 2016) | 11 | 1.8 |
| Sei whale | <i>Balaenoptera borealis</i> | Nova Scotia | E/D, Y | 6,292 (1.02; 3,098; 2016) | 6.2 | 0.8 |

| | | | | | | |
|---|---------------------------------------|--|--------|---------------------------------|-------|------|
| Minke whale | <i>Balaenoptera acutorostrata</i> | Canadian East Coastal | -/-, N | 21,968 (0.31; 17,002; 2016) | 170 | 10.6 |
| <i>Order Cetartiodactyla—Cetacea—Superfamily Odontoceti (toothed whales, dolphins, and porpoises)</i> | | | | | | |
| Sperm whale | <i>Physeter macrocephalus</i> | North Atlantic | E/D, Y | 4,349 (0.28; 3,451; 2016) | 3.9 | 0 |
| Long-finned pilot whale | <i>Globicephala melas</i> | Western North Atlantic | -/-, N | 39,215 (0.3; 30,627; 2016) | 306 | 29 |
| Atlantic white-sided dolphin | <i>Lagenorhynchus acutus</i> | Western North Atlantic | -/-, N | 93,233 (0.71; 54,443; 2016) | 544 | 27 |
| Bottlenose dolphin | <i>Tursiops truncatus</i> | Western North Atlantic Offshore | -/-, N | 62,851 (0.23; 51,914; 2016) | 519 | 28 |
| Common dolphin | <i>Delphinus delphis</i> | Western North Atlantic | -/-, N | 172,974(0.21, 145,216, 2016) | 1,452 | 390 |

| | | | | | | |
|---|---------------------------|-----------------------------|--------|-----------------------------|-------|-------|
| Atlantic spotted dolphin | <i>Stenella frontalis</i> | Western North Atlantic | -/-, N | 39,921 (0.27; 32,032; 2016) | 320 | 0 |
| Risso's dolphin | <i>Grampus griseus</i> | Western North Atlantic Sock | -/-, N | 35,215 (0.19; 30,051; 2016) | 301 | 34 |
| Harbor porpoise | <i>Phocoena phocoena</i> | Gulf of Maine/Bay of Fundy | -/-, N | 95,543 (0.31; 74,034; 2016) | 851 | 164 |
| <i>Order Carnivora—Superfamily Pinnipedia</i> | | | | | | |
| Harbor seal | <i>Phoca vitulina</i> | Western North Atlantic | -/-, N | 61,336 (0.08; 57,637; 2018) | 1,729 | 339 |
| Gray seal ⁴ | <i>Halichoerus grypus</i> | Western North Atlantic | -/-, N | 27,300 (0.22; 22,785; 2018) | 1,389 | 4,453 |

¹ ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

² NMFS marine mammal stock assessment reports online at: www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments. CV is the coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable.

³ These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike).

⁴ NMFS' stock abundance estimate (and associated PBR value) applies to U.S. populations only. Total stock abundance (including animals in Canada) is approximately 451,431. The annual M/SI value given is for the total stock.

⁵ The draft 2022 SARs have yet to be released; however, NMFS has updated its species web page to recognize the population estimate for NARWs is now below 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>).

A detailed description of the of the species likely to be affected by Atlantic Shores Bight's activities, including information regarding population trends, threats, and local occurrence, was provided in the **Federal Register** notice for the proposed IHA (87 FR 38067; June 27, 2022); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, etc.). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.*

(2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

Table 3. Marine Mammal Hearing Groups (NMFS, 2018).

| Hearing Group | Generalized Hearing Range* |
|--|----------------------------|
| Low-frequency (LF) cetaceans (baleen whales) | 7 Hz to 35 kHz |
| Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales) | 150 Hz to 160 kHz |
| High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, Cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>) | 275 Hz to 160 kHz |
| Phocid pinnipeds (PW) (underwater) (true seals) | 50 Hz to 86 kHz |
| Otariid pinnipeds (OW) (underwater) (sea lions and fur seals) | 60 Hz to 39 kHz |
| * Represents the generalized hearing range for the entire group as a composite (<i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> , 2007) and PW pinniped (approximation). | |

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. 15 marine mammal species (13 cetaceans and 2 phocid pinniped species) have the reasonable potential to co-occur with the planned survey activities. Please refer to Table 2. Of the cetacean species that may be present, five are classified as low-frequency cetaceans (*i.e.*, all mysticete species), seven are classified as mid-frequency cetaceans (*i.e.*, all delphinids and the sperm whale), and one is classified as high-frequency cetaceans (*i.e.*, harbor porpoise).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from the deployed acoustic sources have the potential to result in behavioral harassment of marine mammals in the vicinity of the study area. The **Federal Register** notice for the proposed IHA (87 FR 38067; June 27,

2022) included a discussion of the effects of anthropogenic noise on marine mammals and their habitat, therefore that information is not repeated here; please refer to the **Federal Register** notice (87 FR 38067; June 27, 2022) for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers," and the negligible impact determinations.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes are by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to HRG acoustic sources. Based on the nature of the activity, Level A harassment is neither anticipated (even absent mitigation) nor authorized. Level A harassment (injury) is considered unlikely based on the characteristics of the signals produced by the acoustic sources planned for use. Implementation of required mitigation detailed in the **Mitigation** section below further reduces the potential for Level A harassment. As described previously, no serious injury or mortality is anticipated or authorized for this activity. Below we describe how the authorized take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent

hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.*, 2007, 2021, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μ Pa)) when exposed to

underwater anthropogenic noise above received levels of 160 dB re 1 μ Pa (rms) for the impulsive sources (*i.e.*, sparkers) and non-impulsive, intermittent sources (*e.g.*, CHIRPs) evaluated here for Atlantic Shores Bight's activities.

Atlantic Shores Bight's HRG surveys include the use of non-impulsive, intermittent (CHIRPs) and impulsive (sparkers) sources, and therefore the RMS SPL threshold of 160 dB re 1 μ Pa is applicable.

Level A harassment – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Atlantic Shores Bight's HRG survey activities include the use of impulsive (sparkers) and non-impulsive (CHIRPs) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at:

www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.

Table 4. Thresholds Identifying the Onset of Permanent Threshold Shift.

| Hearing Group | PTS Onset Thresholds* (Received Level) | |
|---------------------------------------|---|---------------------------|
| | Impulsive | Non-impulsive |
| Low-Frequency (LF) Cetaceans | <i>Cell 1</i> | <i>Cell 2</i> |
| | $L_{p,0-pk,flat}$: 219 dB $L_{E,p,LF,24h}$: 183 dB | $L_{E,p,LF,24h}$: 199 dB |
| Mid-Frequency (MF) Cetaceans | <i>Cell 3</i> | <i>Cell 4</i> |
| | $L_{p,0-pk,flat}$: 230 dB $L_{E,p,MF,24h}$: 185 dB | $L_{E,p,MF,24h}$: 198 dB |
| High-Frequency (HF) Cetaceans | <i>Cell 5</i> | <i>Cell 6</i> |
| | $L_{p,0-pk,flat}$: 202 dB $L_{E,p,HF,24h}$: 155 dB | $L_{E,p,HF,24h}$: 173 dB |
| Phocid Pinnipeds (PW) (Underwater) | <i>Cell 7</i> | <i>Cell 8</i> |
| | $L_{p,0-pk,flat}$: 218 dB $L_{E,p,PW,24h}$: 185 dB | $L_{E,p,PW,24h}$: 201 dB |

| | | |
|--|--|---|
| Otariid Pinnipeds (OW) (Underwater) | <i>Cell 9</i> $L_{p,0-pk,flat}$: 232 dB $L_{E,p,OW,24h}$: 203 dB | <i>Cell 10</i> $L_{E,p,OW,24h}$: 219 dB |
| <p>* Dual metric thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds are recommended for consideration. <i>Note:</i> Peak sound pressure level ($L_{p,0-pk}$) has a reference value of 1 μPa, and weighted cumulative sound exposure level ($L_{E,p}$) has a reference value of 1 μPa²s. In this Table, thresholds are abbreviated to be more reflective of International Organization for Standardization standards (ISO 2017). The subscript “flat” is being included to indicate peak sound pressure are flat weighted or unweighted within the generalized hearing range of marine mammals (<i>i.e.</i>, 7 Hz to 160 kHz). The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The weighted cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these thresholds will be exceeded.</p> | | |

The 2020 **Federal Register** notice of proposed IHA for Atlantic Shores' HRG surveys (85 FR 7926; February 12, 2020) previously analyzed the potential for Level A harassment (refer to Table 5 in that notification and additional discussion therein).

Similar to the past IHAs issued to Atlantic Shores, the activities for 2022-2023 include the use of impulsive (*i.e.*, sparkers) and non-impulsive (*e.g.*, CHIRPs) sources, and Atlantic Shores Bight did not request authorization of take by Level A harassment. The locations, species, survey durations, equipment used, and source levels authorized are all of a similar scope previously analyzed for Atlantic Shores' surveys. NMFS concluded for past surveys that Level A harassment was not a reasonably likely outcome for marine mammals exposed to noise through use of similar impulsive and non-impulsive HRG sources, therefore, the same conclusion applies to the sources authorized for use here. Therefore, the potential for Level A harassment is not evaluated further in this document and no take by Level A harassment is authorized by NMFS. Note that the mitigation measures will further reduce the potential for Level A harassment.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

NMFS has developed a user-friendly methodology for estimating the extent of the Level B harassment isopleths associated with relevant HRG survey equipment (NMFS, 2020). This methodology incorporates frequency and directionality to refine estimated ensonified zones. For acoustic sources that operate with different beamwidths, the maximum beamwidth was used, and the lowest frequency of the source was used when calculating the frequency-dependent absorption coefficient (Table 1).

NMFS considers the data provided by Crocker and Fratantonio (2016) to represent the best available scientific information on source levels associated with HRG survey equipment and, therefore, recommends that source levels provided by Crocker and Fratantonio (2016) be incorporated in the method described above to estimate isopleth distances to harassment thresholds. In cases where the source level for a specific type of HRG equipment is not provided in Crocker and Fratantonio (2016), NMFS recommends that either the source levels provided by the manufacturer be used, or, in instances where source levels provided by the manufacturer are unavailable or unreliable, a proxy from Crocker and Fratantonio (2016) may be used instead. Table 1 shows the HRG equipment types that may be used during the authorized surveys and the source levels associated with those HRG equipment types. The computations and results from the Level B harassment ensonified area analysis are displayed in Table 5.

Table 5. Information inputs and resulting distances to Level B threshold (m) for representative acoustic sources.

| Source information | | Input values into Spreadsheet | | | | Computed Values | |
|------------------------------------|-----------------------------|---|--|---------------------------------|-----------------------|---|--|
| HRG Survey Equipment Type | Representative Equipment | Operating Frequencies Ranges (kHz) | Operational Source Level Ranges (dB _{RMS}) | Beamwidth Ranges (degree) | Water depth (m) | Slant Threshold Range to Level B | Horizontal Threshold Range to Level B |

| | | | | | | threshold (m) | threshold (m) |
|---------|--|------|-----|-----|----|------------------|------------------|
| Sparker | SIG ELC 820 sparker at 750J* | 0.01 | 203 | 180 | 5 | 141 | 141 |
| | Geo Marine Survey System 2D SUHRS | 0.2 | 195 | 180 | 5 | 56 | 56 |
| CHIRPs | Edgetech 2000-DSS | 2 | 195 | 24 | 5 | 56 | 1.1 |
| | Edgetech 216 | 2 | 179 | 24 | 5 | 9 | 1.1 |
| | Edgetech 424 | 4 | 180 | 71 | 10 | 10 | 5.8 |
| | Edgetech 512i | 0.7 | 179 | 80 | 10 | 9 | 5.8 |
| | Pangeosubs ea Sub- Bottom ImagerTM | 4 | 190 | 120 | 5 | 32 | 8.7 |

*Used as a proxy for the Applied Acoustics Dura-Spark 240 because the specific energy setting isn't described in Crocker and Franantonio (2016).

Results of modeling using the methodology described and shown above indicated that, of the HRG survey equipment planned for use by Atlantic Shores Bight that has the

potential to result in Level B harassment of marine mammals, the Applied Acoustics Dura-Spark 240 would produce the largest Level B harassment isopleth (141 m; please refer to Table 6).

Although Atlantic Shores Bight does not expect to use sparker sources on all planned survey days and during the entire duration that surveys are likely to occur, Atlantic Shores Bight assumes, for purposes of analysis, that the sparker would be used on all survey days. This is a conservative approach, as the actual sources used on individual survey days may produce smaller harassment distances, and NMFS agrees with this approach.

The Level B harassment isopleth distance of 141 m generated for the Dura-Spark 240 was used as the “r” input to calculate the zone of influence (ZOI) around the survey vessel, which is the maximum ensonified area around the sound source over a 24 hour period. The following formula for a mobile source was used to calculate the ZOI:

$$\text{Mobile Source ZOI} = (\text{Distance/day} \times 2r) + \pi r^2$$

Where: *Distance/day* = the maximum distance a survey vessel could travel in a 24-hour period; *r* = the maximum radial distance from a given sound source to the NOAA Level A or Level B harassment thresholds. For the purpose of the Atlantic Shores Bight HRG surveys, the total *distance/day* has been estimated to be approximately 55.0 km in the survey area. Based upon a daily survey distance of 55 km/day and a maximum radial distance to the Level B harassment threshold (141 m, see Tables 6, 7), an area of 15.57 km² will be ensonified to the Level B harassment threshold across both survey sites during Atlantic Shores Bight’s authorized surveys (Table 6).

Table 6. Maximum HRG Survey Area Distances and Daily Ensonified Areas

| Survey area | Number of active survey days | Survey distances per day in km | Maximum radial distance (r) in m | Calculated Isopleth per day (km ²) | Total annual ensonified area (km ²) |
|-----------------|------------------------------|--------------------------------|----------------------------------|--|---|
| Lease Area | 180 | 55 | 141 | 15.57 | 2,802.6 |
| ECR Survey Area | 180 | | | | 2,802.6 |

As described above, this is a conservative estimate as it assumes the HRG source that results in the greatest isopleth distance to the Level B harassment threshold would be operated at all times during the entire survey, which is not expected to ultimately occur.

Marine Mammal Occurrence

In this section we provide information about the occurrence of marine mammals, including density or other relevant information that will inform the take calculations.

Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory and the Marine-life Data and Analysis Team, based on the best available marine mammal data from 1992-2019 obtained in a collaboration between Duke University, the Northeast Regional Planning Body, the University of North Carolina Wilmington, the Virginia Aquarium and Marine Science Center, and NOAA (Roberts *et al.*, 2016a; Curtice *et al.*, 2018), represent the best available scientific information regarding marine mammal densities in the survey area. More recently, these data have been updated with new modeling results and include density estimates for pinnipeds (Roberts *et al.*, 2016b, 2017, 2018, 2020).

The density data presented by Roberts *et al.*, (2016b, 2017, 2018, 2020) incorporates aerial and shipboard line-transect survey data from NMFS and other organizations and incorporates data from eight physiographic and 16 dynamic

oceanographic and biological covariates, and controls for the influence of sea state, group size, availability bias, and perception bias on the probability of making a sighting. These density models were originally developed for all cetacean taxa in the U.S. Atlantic (Roberts *et al.*, 2016a). In subsequent years, certain models have been updated based on additional data as well as certain methodological improvements. More information is available online at <https://seamap.env.duke.edu/models/Duke/EC/>. Marine mammal density estimates in the survey area (animals/km²) were obtained using the most recent model results for all taxa (Roberts *et al.*, 2016b, 2017, 2018, 2020). The updated models incorporate additional sighting data, including sightings from NOAA's Atlantic Marine Assessment Program for Protected Species (AMAPPS) surveys.

For the exposure analysis, density data from Roberts *et al.*, (2016b, 2017, 2018, 2020) were mapped using a geographic information system (GIS). For each of the survey areas (*i.e.*, Lease Survey Area, ECR Survey Area), the densities of each species as reported by Roberts *et al.* (2016b, 2017, 2018, 2020) were averaged by season; thus, a density was calculated for each species for spring, summer, fall and winter. The seasons were defined as follows: Spring (March- May); summer (June- August); fall (September- November); winter (December- February). To be conservative, the greatest seasonal density calculated for each species was then carried forward in the exposure analysis. Estimated seasonal densities (animals per km²) of all marine mammal species that may be taken by the survey, for all survey areas are shown in Tables C-1, C-2 and C-3 in Appendix C of Atlantic Shores Bight's IHA application. The maximum seasonal density values used to estimate take numbers are shown in Table 7 below. Below, we discuss how densities were assumed to apply to specific species for which the Roberts *et al.* (2016b, 2017, 2018, 2020) models provide results at the genus or guild level.

For bottlenose dolphin densities, Roberts *et al.* (2016b, 2017, 2018) does not differentiate by individual stock. As the northern migratory coastal stock is not expected to occur in the survey area, densities and takes were only analyzed for the offshore stock.

Pilot whale density models from Duke University (Roberts *et al.* 2016a, 2016b, 2017) represent pilot whales as a ‘guild’ rather than by species. However, since the survey area is only expected to contain long-finned pilot whales, it is assumed that pilot whale densities modeled by Roberts *et al.* (2016a, 2016b, 2017) in the survey area only reflect the presence of long-finned pilot whales.

Recently, the Duke University density data have been updated with new modeling results, including updated NARW density data and density estimates for pinnipeds (Roberts *et al.*, 2016b, 2017, 2018, 2020). Updated density estimates for the NARW are due to the inclusion of three new datasets: 2011-2015 Northeast Large Pelagic Survey Cooperative, 2017-2018 Marine Mammal Surveys of the Wind Energy Areas conducted by the New England Aquarium, and 2017-2018 New York Bight Whale Monitoring Program surveys conducted by the New York State Department of Environmental conservation (NYSDEC). This new density data shows distribution changes that are likely influenced by oceanographic and prey covariates in the whale density model (Roberts *et al.*, 2021).

Pinniped density data (as presented in Roberts *et al.*, 2016b, 2017, 2018) were used to estimate pinniped densities within the identified survey area. Since pinniped density models (Roberts *et al.*, 2016b, 2017, 2018) represent seals as a “guild” rather than by species, seal densities were apportioned for gray and harbor seals as 50 percent for each stock. These estimates were then applied to the average seasonal density values which were analyzed using the Roberts *et al.* (2018) data.

Seasonal marine mammal densities across survey areas are shown in Table 7. Maximum densities used in exposure analysis are shown in Table 8.

Table 7. Marine mammal seasonal densities across survey sites

| Species | Averaged Seasonal Densities (Number of animals per 100 km ²) | | | | | | | |
|-------------------------------------|--|-------|---------------|-------|---------------|-------|---------------|--------|
| | Spring | | Summer | | Fall | | Winter | |
| | Lease Area | ECR | Lease Area | ECR | Lease Area | ECR | Lease Area | ECR |
| North Atlantic right whale | 0.386 | 0.475 | 0.003 | 0.003 | 0.011 | 0.012 | 0.273 | 0.373 |
| Humpback whale | 0.068 | 0.045 | 0.021 | 0.023 | 0.055 | 0.058 | 0.021 | 0.040 |
| Fin whale | 0.230 | 0.193 | 0.295 | 0.216 | 0.237 | 0.170 | 0.167 | 0.120 |
| Sei whale | 0.012 | 0.013 | 0.002 | 0.001 | 0.002 | 0.002 | 0.002 | 0.001 |
| Minke whale | 0.168 | 0.112 | 0.062 | 0.037 | 0.045 | 0.027 | 0.057 | 0.039 |
| Sperm whale | 0.003 | 0.003 | 0.030 | 0.042 | 0.021 | 0.023 | 0.002 | 0.001 |
| Long-finned pilot whale | 0.354 | 0.256 | 0.354 | 0.256 | 0.354 | 0.256 | 0.354 | 0.256 |
| Bottlenose dolphin (offshore stock) | 1.622 | 0.776 | 2.309 | 3.028 | 5.011 | 3.231 | 2.786 | 1.347 |
| Common dolphin | 7.017 | 3.326 | 6.138 | 3.753 | 7.235 | 6.611 | 19.246 | 13.251 |
| Atlantic white-sided dolphin | 2.213 | 1.611 | 0.972 | 0.802 | 0.855 | 0.726 | 1.461 | 0.890 |
| Atlantic spotted dolphin | 0.062 | 0.036 | 0.513 | 0.327 | 0.409 | 0.267 | 0.026 | 0.015 |
| Risso's dolphin | 0.012 | 0.005 | 0.089 | 0.038 | 0.024 | 0.012 | 0.032 | 0.015 |
| Harbor porpoise | 6.657 | 6.059 | 0.034 | 0.049 | 0.215 | 0.556 | 3.927 | 5.635 |
| Harbor seal | 3.544 | 5.799 | 0.052 | 0.077 | 0.055 | 0.109 | 3.262 | 5.479 |
| Gray seal | 3.544 | 5.799 | 0.052 | 0.077 | 0.055 | 0.109 | 3.262 | 5.479 |

Table 8. Maximum seasonal densities of marine mammals used in exposure analysis

| Species | Maximum Seasonal Density Used (Number of animals per 100 km ²) | |
|------------------------------|---|-----------------|
| | Lease Area | ECR Survey Area |
| North Atlantic right whale | 0.386 | 0.475 |
| Humpback whale | 0.068 | 0.058 |
| Fin whale | 0.295 | 0.216 |
| Sei whale | 0.012 | 0.013 |
| Minke whale | 0.168 | 0.112 |
| Sperm whale | 0.030 | 0.042 |
| Long-finned pilot whale | 0.354 | 0.256 |
| Bottlenose dolphin | 5.011 | 3.231 |
| Common dolphin | 19.246 | 13.251 |
| Atlantic white-sided dolphin | 2.213 | 1.611 |
| Atlantic spotted dolphin | 0.062 | 0.036 |
| Risso's dolphin | 0.089 | 0.038 |
| Harbor porpoise | 6.657 | 6.059 |
| Harbor seal | 3.544 | 5.799 |
| Gray seal | 3.544 | 5.799 |

Take Estimation

Here we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and authorized.

The number of marine mammals expected to be incidentally taken per day is calculated by estimating the number of each species predicted to occur within the daily ensonified area (animals/km²), incorporating the maximum seasonal estimated marine mammal densities as described above. Estimated numbers of each species taken per day across all survey sites are then multiplied by the total number of survey days (*i.e.*, 360). The product is then rounded, to generate an estimate of the total number of instances of harassment expected for each species over the duration of the survey. A summary of this method is illustrated in the following formula with the resulting authorized take of marine mammals is shown below in Table 9:

$$\text{Estimated Take} = D \times \text{ZOI} \times \# \text{ of days}$$

Where:

D = average species density (per km²); and

ZOI = maximum daily ensonified area to relevant thresholds.

Table 9. Total estimated and authorized take numbers (by Level B harassment only)

| Species | Calculated take estimate | | Combined take estimate | Total adjusted authorized take estimate* | Percent of population to be taken |
|----------------------------|--------------------------|-----------------|------------------------|--|-----------------------------------|
| | Lease Area | ECR Survey Area | | | |
| North Atlantic right whale | 11 | 13 | 24 | 24 | 6.5 |
| Humpback whale* | 2 | 2 | 4 | 8 | 0.6 |
| Fin whale | 9 | 7 | 16 | 16 | 0.2 |

| | | | | | |
|-------------------------------------|-----|-----|-----|-----|------|
| Sei whale [^] | 0.3 | 0.4 | 0.7 | 2 | 0.03 |
| Minke whale | 5 | 3 | 8 | 8 | 0.04 |
| Sperm whale | 0.9 | 2 | 2.9 | 3 | 0.07 |
| Long-finned pilot whale* | 10 | 8 | 18 | 20 | 0.07 |
| Bottlenose dolphin (Offshore stock) | 141 | 91 | 232 | 232 | 0.4 |
| Common dolphin | 539 | 372 | 911 | 911 | 0.2 |
| Atlantic white-sided dolphin | 62 | 46 | 108 | 108 | 0.5 |
| Atlantic spotted dolphin* | 2 | 1 | 3 | 100 | 0.3 |
| Risso's dolphin* | 3 | 2 | 5 | 30 | 0.1 |
| Harbor porpoise | 187 | 170 | 357 | 357 | 0.4 |
| Harbor seal | 100 | 163 | 263 | 263 | 0.4 |
| Gray seal | 100 | 163 | 263 | 263 | 1.0 |

* Requested take adjusted for group size

[^] Based upon previous IHAs

NMFS has rounded decimal estimates to the nearest whole number in the event that a decimal was calculated for take. Therefore, take estimates for the sperm whale and sei whale were rounded up to three whales and two whales, respectively (Table 9). Requested take estimates were also adjusted to account for typical group sizes of humpback whale (King *et al.*, 2021), Risso's dolphin (NOAA 2022), Atlantic spotted dolphin (Jefferson *et al.*, 2008), and long-finned pilot whale (NOAA 2022). A total of 30 takes of Risso's dolphin, 100 takes of Atlantic spotted dolphin, and 20 takes of long-

finned pilot whales are requested. Adding these additional takes ensures the number of takes authorized is at least equal to the average group size.

Based on recent information from King *et al.* (2021) that demonstrated that the humpback whale is commonly sighted along the New York Bight area, NMFS determined that the humpback whale take request may be too low given the occurrence of animals near the survey area. Because of this, NMFS doubled the requested take to account for underestimates to the actual occurrence of this species within the density data.

Previously, 100 takes of Atlantic spotted dolphins, by Level B harassment, were authorized to Atlantic Shores during their 2020 IHA surveys (85 FR 7926; February 12, 2020). Early into the 2021 field season, Atlantic Shores observed large numbers of Atlantic spotted dolphins. A take of 100 Atlantic spotted dolphins was authorized for the Atlantic Shores 2022 IHA (87 FR 4200, January 27, 2022) to account for these numerous sightings. Based upon takes authorized for prior IHAs, NMFS adjusted the take estimate, by Level B harassment, from 3 to 100 Atlantic spotted dolphins.

One sei whale take was calculated (Table 9), however, Atlantic Shores Bight has requested to increase sei whale takes to two whales. This increase is based on the average group size of sei whales (NOAA 2022). Therefore, NMFS adjusted the take estimate, by Level B harassment, from 1 sei whale to 2 sei whales.

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take

authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR § 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost and impact on operations.

NMFS requires that the following mitigation measures be implemented during Atlantic Shores Bight's planned marine site characterization surveys. Pursuant to section 7 of the ESA, Atlantic Shores Bight is also required to adhere to relevant Project Design Criteria (PDC) of the NMFS' Greater Atlantic Regional Fisheries Office (GARFO) programmatic consultation (specifically PDCs 4, 5, and 7) regarding geophysical surveys along the U.S. Atlantic coast (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation>).

Marine Mammal Shutdown Zones

Marine mammal shutdown zones will be established around specified HRG survey equipment and monitored by PSOs. These PSOs will be NMFS-approved visual PSOs. Based upon the acoustic source in use (impulsive: Sparkers; non-impulsive: Non-parametric sub-bottom profilers), a minimum of one PSO must be on duty, per source vessel, during daylight hours and two PSOs must be on duty, per source vessel, during nighttime hours. These PSO will monitor shutdown zones based upon the radial distance from the acoustic source rather than being based around the vessel itself. The shutdown zone distances are as follows:

- A 500-m shutdown zone for NARW during use of specified acoustic sources (impulsive: Sparkers; non-impulsive: Non-parametric sub-bottom profilers).
- A 100-m shutdown zone for all other marine mammals (excluding NARWs and delphinids from the genera *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops* that are visually detected as voluntarily approaching the vessel or towed equipment) during use of specified acoustic sources (as specified below). All visual monitoring must begin no less than 30 minutes prior to the initiation of the specified acoustic source and must continue until 30 minutes after use of specified acoustic sources ceases.

If a marine mammal is detected approaching or entering the shutdown zones during the HRG survey, the vessel operator will adhere to the shutdown procedures described below to minimize noise impacts on the animals. If a shutdown is required, a PSO will notify the survey crew immediately. Vessel operators and crews will comply immediately with any call for shutdown. Shutdown will remain in effect until the minimum separation distances (detailed above) between the animal and noise source are re-established. These stated requirements will be included in the site-specific training to be provided to the survey team.

Ramp up of Survey Equipment and Pre-Clearance of the Shutdown Zones

When technically feasible, a ramp-up procedure will be required for HRG survey equipment capable of adjusting energy levels at the start or restart of survey activities. A ramp-up will begin with the powering up of the smallest acoustic HRG equipment at its lowest practical power output appropriate for the survey. The ramp-up procedure will be used in order to provide additional protection to marine mammals near the survey area by allowing them to vacate the area prior to the commencement of survey equipment operation at full power. When technically feasible, the power will then be gradually turned up and other acoustic sources will be added. All ramp-ups shall be scheduled so as to minimize the time spent with the source being activated.

Ramp-up activities will be delayed if a marine mammal(s) enters its respective shutdown zone. Ramp-up will continue if the animal has been observed exiting its respective shutdown zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals and 30 minutes for all other species).

Atlantic Shores Bight is required to implement a 30 minute pre-clearance period of the shutdown zones prior to the initiation of ramp-up of HRG equipment. The operator must notify a designated PSO of the planned start of ramp-up where the notification time should not be less than 60 minutes prior to the planned ramp-up. This will allow the PSOs to monitor the shutdown zones for 30 minutes prior to the initiation of ramp-up. Prior to ramp-up beginning, Atlantic Shores Bight must receive confirmation from the PSO that the shutdown zone is clear prior to proceeding. During this 30 minute pre-start clearance period, the entire applicable shutdown zones must be visible. The exception to this will be in situations where ramp-up may occur during periods of poor visibility (inclusive of nighttime) as long as appropriate visual monitoring has occurred with no detections of marine mammals in 30 minutes prior to the beginning of ramp-up. Acoustic

source activation may only occur at night where operational planning cannot reasonably avoid such circumstances.

During this period, the shutdown zone will be monitored by the PSOs, using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective shutdown zone. If a marine mammal is observed within a shutdown zone during the pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective shutdown zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and pinnipeds and 30 minutes for all other species). If a marine mammal enters the shutdown zone during ramp-up, ramp-up activities must cease and the source must be shut down. Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zones.

The required pre-clearance zones will be:

- 500-m for all ESA-listed species (North Atlantic right, sei, fin, sperm whales);
and
- 100-m for all other marine mammals.

If any marine mammal species that are listed under the ESA are observed within the clearance zones, the presence of the animal will be recorded and the 30 minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30 minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.

If the acoustic source is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), the acoustic source may be reactivated without ramp-up if PSOs have maintained constant visual observation and no detection of marine mammals occurs within the

applicable shutdown zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.

Activation of survey equipment through ramp-up procedures may not occur when visual detection of marine mammals within the pre-clearance zone is not expected to be effective (*e.g.*, during inclement conditions such as heavy rain or fog).

The acoustic source(s) must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source shall be avoided.

Shutdown Procedures

An immediate shutdown of the impulsive HRG survey equipment (Table 1) is required if a marine mammal is sighted entering or within its respective shutdown zone(s). Any PSO on duty has the authority to call for a shutdown of the acoustic source if a marine mammal is detected within the applicable shutdown zones. Any disagreement between the PSO and vessel operator should be discussed only after shutdown has occurred. The vessel operator will establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the HRG source(s) to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.

The shutdown requirement is waived for small delphinids (belonging to the genera of the Family *Delphinidae*: *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops*) and pinnipeds if they are visually detected within the applicable shutdown zones. If a species for which authorization has not been granted, or, a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the applicable Level B harassment zone, shutdown is required to occur. In the event of uncertainty regarding the identification of a marine mammal species (*i.e.*, such as whether the observed marine mammal belongs to

Delphinus, *Lagenorhynchus*, *Stenella*, or *Tursiops* for which shutdown is waived, PSOs must use their best professional judgment in making the decision to call for a shutdown.

Specifically, if a delphinid from the specified genera or a pinniped is visually detected approaching the vessel (*i.e.*, to bow ride) or towed equipment, shutdown is not required.

Upon implementation of a shutdown, the source may be reactivated after the marine mammal has been observed exiting the applicable shutdown zone or following a clearance period of 15 minutes for harbor porpoises and 30 minutes for all other species where there are no further detections of the marine mammal.

Shutdown, pre-start clearance, and ramp-up procedures are not required during HRG survey operations using only non-impulsive sources (*e.g.*, parametric sub-bottom profilers) other than non-parametric sub-bottom profilers (*e.g.*, CHIRPs). Pre-clearance and ramp-up, but not shutdown, are required when using non-impulsive, non-parametric sub-bottom profilers.

Seasonal Operating Requirements

A section of the survey area overlaps with approximately 2% of a NARW SMA. This SMA is active from November 1 through April 30 of each year. All survey vessels, regardless of length, are required to adhere to vessel speed restrictions (<10 kn; 18.5 km/hr) when operating within the SMA during times when the SMA is active. In addition, between watch shifts, members of the monitoring team will consult NMFS' NARW reporting systems for the presence of NARW throughout survey operations. Members of the monitoring team will also monitor the NMFS NARW reporting systems for the establishment of DMA. NMFS may also establish voluntary right whale Slow Zones any time a right whale (or whales) is acoustically detected. Atlantic Shores Bight should be aware of this possibility and remain attentive in the event a Slow Zone is established nearby or overlapping the survey area (Table 10).

Table 10. North Atlantic right whale dynamic management area (DMA) and seasonal management area (SMA) restrictions within Survey Area

| Survey Area | Species | DMA Restrictions | Slow Zones | SMA Restrictions |
|-----------------|---|---|------------|---|
| Lease Area | North Atlantic Right Whale (<i>Eubalaena glacialis</i>) | If established by NMFS, all of Atlantic Shores Bight's vessels will abide by the described restrictions | | N/A |
| ECR Survey Area | | | | November 1- April 30 (ports of New York/New Jersey) |

There are no known marine mammal rookeries or mating or calving grounds in the survey area that would otherwise potentially warrant increased mitigation measures for marine mammals or their habitat (or both). The authorized survey activities will occur in an area that has been identified as a BIA for migration for NARW. However, given the small spatial extent of the survey area relative to the substantially larger spatial extent of the right whale migratory area and the relatively low amount of noise generated by the survey activities, the survey activities are not expected to appreciably reduce the quality of migratory habitat nor to negatively impact the migration of NARW.

Vessel Strike Avoidance Procedures

Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

- A Vessel Strike Avoidance Zone(s) will be maintained, as defined as 1,640 ft (500 m) or greater from any sighted ESA-listed whale species or other unidentified large marine mammal;
 - a) If a large whale is identified within 1,640 ft (500 m) of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 kn (18.5 km/hr) or less until the 1,640 ft (500 m) minimum separation distance has been established. Vessels may also shift to idle if feasible.
 - b) If a large whale is sighted within 656 ft (200 m) of the forward path of a vessel, the vessel operator must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 1,640 ft (500 m). If stationary, the vessel must not engage engines until the large whale has moved beyond 1,640 ft (500 m).
- All vessel operators and crew will maintain vigilant watch for all marine mammals, and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammals. Unless a required PSO is aboard and on duty, then a designated and trained vessel crew member on all vessels associated with survey activities (transiting [*i.e.*, traveling between a port and survey site] or actively surveying) will be assigned as a lookout for marine mammals;
- Members of the monitoring team will consult NMFS NARW reporting system and Whale Alert, daily and as able, for the presence of NARW throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the survey area during the survey, the vessels will abide by speed restrictions in the DMA. All survey vessels,

regardless of size, will observe a 10 kn (less than 18.5 km per hour [km/h]) speed restriction in the specific areas designated by NOAA Fisheries for the protection of NARWs from vessel strikes including SMAs, Right Whale Slow Zones, and DMAs, when in effect. See www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales for specific detail regarding these areas.

- All vessels greater than or equal to 65 ft (19.8 m) in overall length operating from November 1 through April 30 will operate at speeds of 10 knots or less while transiting to and from the survey area.
- All vessels, regardless of size, will reduce vessel speed to 10 knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near (within 330 ft [100 m]) of an underway vessel.
- All vessels will, to the maximum extent practicable, attempt to maintain a minimum separation distance of 164 ft (50 m) from all other marine mammals than ESA-listed and large whales, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel).
- When marine mammals are sighted while a vessel is underway, the vessel will take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). Engines will not be engaged until the animals are clear of the area. This will not apply to any vessel towing gear or any vessel that is navigationally constrained.

Training

All PSOs must have completed a PSO training program and received NMFS approval to act as a PSO for geophysical surveys. Documentation of NMFS approval and most recent training certificates of individual PSOs' successful completion of a commercial PSO training course must be provided upon request. Further information can be found at www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers. In the event where third-party PSOs are not required, crew members serving as lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.

Atlantic Shores Bight shall instruct relevant vessel personnel with regard to the authority of the marine mammal monitoring team, and shall ensure that relevant vessel personnel and the marine mammal monitoring team participate in a joint onboard briefing (hereafter PSO briefing), led by the vessel operator and lead PSO, prior to beginning survey activities to ensure that responsibilities, communication procedures, marine mammal monitoring protocols, safety and operational procedures, and IHA requirements are clearly understood. This PSO briefing must be repeated when relevant new personnel (*e.g.*, PSOs, acoustic source operator) join the survey operations before their responsibilities and work commences.

Project-specific training will be conducted for all vessel crew prior to the start of a survey and during any changes in crew such that all survey personnel are fully aware and understand the mitigation, monitoring, and reporting requirements. All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of listed species. The expectation and process for reporting of protected species sighted during surveys must be clearly communicated and posted in highly visible locations aboard all project

vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so. Prior to implementation with vessel crews, the training program will be provided to NMFS for review and approval. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew member understands and will comply with the necessary requirements throughout the survey activities.

Based on our evaluation of the applicant's mitigation measures, NMFS has determined that these measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);

- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,
- Mitigation and monitoring effectiveness.

Monitoring Measures

Atlantic Shores Bight must use independent, dedicated, trained PSOs, meaning that the PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammal and mitigation requirements (including brief alerts regarding maritime hazards), and must have successfully completed an approved PSO training course for geophysical surveys. Visual monitoring must be performed by qualified, NMFS-approved PSOs. PSO resumes must be provided to NMFS for review and approval prior to the start of survey activities.

PSO names must be provided to NMFS by the operator for review and confirmation of their approval for specific roles prior to commencement of the survey.

For prospective PSOs not previously approved, or for PSOs whose approval is not current, NMFS must review and approve PSO qualifications. Resumes should include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training.

NMFS may approve PSOs as conditional or unconditional. A conditionally-approved PSO may be one who is trained but has not yet attained the requisite experience. An unconditionally-approved PSO is one who has attained the necessary experience. For unconditional approval, the PSO must have a minimum of 90 days at sea performing the role during a geophysical survey, with the conclusion of the most recent relevant experience not more than 18 months previous.

At least one of the visual PSOs aboard the vessel must be unconditionally-approved. One unconditionally-approved visual PSO shall be designated as the lead for the entire PSO team. This lead should typically be the PSO with the most experience, would coordinate duty schedules and roles for the PSO team, and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the duty schedule shall be planned such that unconditionally-approved PSOs are on duty with conditionally-approved PSOs.

PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting

academic, commercial, or government-sponsored marine mammal surveys; and (3) previous work experience as a PSO (PSO must be in good standing and demonstrate good performance of PSO duties).

PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.

PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars or night-vision equipment and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

Any observations of marine mammal by crew members aboard any vessel associated with the survey shall be relayed to the PSO team.

Atlantic Shores Bight must work with the selected third-party PSO provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals, and to ensure that PSOs are capable of calibrating equipment as necessary for accurate distance estimates and species identification. Such equipment, at a minimum, shall include:

- At least one thermal (infrared) image device suited for the marine environment;
- Reticle binoculars (*e.g.*, 7 × 50) of appropriate quality (at least one per PSO, plus backups);
- Global Positioning Units (GPS) (at least one plus backups);

- Digital cameras with a telephoto lens that is at least 300-mm or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens should also have an image stabilization system;
- Equipment necessary for accurate measurement of distances to marine mammal;
- Compasses (at least one plus backups);
- Means of communication among vessel crew and PSOs; and
- Any other tools deemed necessary to adequately and effectively perform PSO tasks.

The equipment specified above may be provided by an individual PSO, the third-part PSO provider, or the operator, but Atlantic Shores Bight is responsible for ensuring PSOs have the proper equipment required to perform the duties specified in the IHA.

During good conditions (*e.g.*, daylight hours; Beaufort sea state 3 or less), PSOs shall conduct observations when the specified acoustic sources are not operating for comparison of sighting rates and behavior with and without use of the specified acoustic sources and between acquisition periods, to the maximum extent practicable.

The PSOs will be responsible for monitoring the waters surrounding each survey vessel to the farthest extent permitted by sighting conditions, including shutdown zones, during all HRG survey operations. PSOs will visually monitor and identify shutdown zones during survey activities. It will be the responsibility of the PSO(s) on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

In cases when pre-clearance has begun in conditions with good visibility, including via the use of night-vision equipment, and the lead PSO has determined that the pre-start clearance zones are clear of marine mammals, survey operations may commence

(*i.e.*, no delay is required) despite brief periods of inclement weather and/or loss of daylight.

Atlantic Shores Bight plans to utilize six PSOs across each vessel to account for shift changes, with a total of 18 during this project (six PSOs per vessel x three vessels). At a minimum, during all HRG survey operations (*e.g.*, any day on which use of an HRG source is planned to occur), one PSO must be on duty during daylight operations on each survey vessel, conducting visual observations at all times on all active survey vessels during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset) and two PSOs will be on watch during nighttime operations. The PSO(s) will ensure 360° visual coverage around the vessel from the most appropriate observation posts and will conduct visual observations using binoculars and/or night vision goggles and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least 2 hours between watches and may conduct a maximum of 12 hours of observation per 24-hr period. In cases where multiple vessels are surveying concurrently, any observations of marine mammals would be communicated to PSOs on all nearby survey vessels.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity to Exclusion Zones. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, night-vision goggles with thermal clip-ons and infrared technology will be used. Position data will be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, PSOs will also conduct observations when the

acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources. Any observations of marine mammals by crew members aboard any vessel associated with the survey will be relayed to the PSO team. Data on all PSO observations will be recorded based on standard PSO collection requirements (see *Reporting Measures*). This will include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances).

Reporting Measures

Atlantic Shores Bight shall submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammals sightings (dates, times, locations, activities, associated survey activities). The draft report shall also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines should include points recording any change in acoustic source status (*e.g.*, when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available. The report must summarize the information submitted in interim monthly reports (if required) as well as additional data collected. A final report must be submitted within 30 days following resolution of any comments on the draft

report. All draft and final marine mammal reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov*, *ITP.Taylor@noaa.gov*, and *nmfs.gar.incidental-take@noaa.gov*.

PSOs must use standardized electronic data forms to record data. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of marine mammal to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances.

At a minimum, the following information must be recorded:

1. Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel;
2. Dates of departures and returns to port with port name;
3. The lease number;
4. PSO names and affiliations;
5. Date and participants of PSO briefings;
6. Visual monitoring equipment used;
7. PSO location on vessel and height of observation location above water surface;
8. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;
9. Vessel location (decimal degrees) when survey effort begins and ends and vessel location at beginning and end of visual PSO duty shifts;
10. Vessel location at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval

11. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;
12. Water depth (if obtainable from data collection software);
13. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;
14. Factors that may contribute to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions); and
15. Survey activity information (and changes thereof), such as acoustic source power output while in operation, number and volume of airguns operating in an array, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, etc.).

Upon visual observation of any marine mammal, the following information must be recorded:

1. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
2. Vessel/survey activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other);
3. PSO who sighted the animal;
4. Time of sighting;
5. Initial detection method;
6. Sightings cue;
7. Vessel location at time of sighting (decimal degrees);

8. Direction of vessel's travel (compass direction);
9. Speed of the vessel(s) from which the observation was made;
10. Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level or unidentified); also note the composition of the group if there is a mix of species;
11. Species reliability (an indicator of confidence in identification);
12. Estimated distance to the animal and method of estimating distance;
13. Estimated number of animals (high/low/best);
14. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
15. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars, or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
16. Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; length of time observed in the harassment zone; note any observed changes in behavior before and after point of closest approach);
17. Mitigation actions; description of any actions implemented in response to the sighting (*e.g.*, delays, shutdowns, ramp-up, speed or course alteration, etc.) and time and location of the action;
18. Equipment operating during sighting;
19. Animal's closest point of approach and/or closest distance from the center point of the acoustic source; and
20. Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

If a NARW is observed at any time by PSOs or personnel on any project vessels, during surveys or during vessel transit, Atlantic Shores Bight must report the sighting information to the NMFS NARW Sighting Advisory System (866-755-6622) within two hours of occurrence, when practicable, or no later than 24 hours after occurrence. NARW sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the WhaleAlert app (<http://www.whalealert.org>).

In the event that Atlantic Shores Bight personnel discover an injured or dead marine mammal, regardless of the cause of injury or death, Atlantic Shores Bight must report the incident to NMFS as soon as feasible by phone (866-755-6622) and by email (nmfs.gar.stranding@noaa.gov and PR.ITP.MonitoringReports@noaa.gov) as soon as feasible. The report must include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Species identification (if known) or description of the animal(s) involved;
3. Condition of the animal(s) (including carcass condition if the animal is dead);
4. Observed behaviors of the animal(s), if alive;
5. If available, photographs or video footage of the animal(s); and
6. General circumstances under which the animal was discovered.

In the unanticipated event of a ship strike of a marine mammal by any vessel involved in the activities covered by the IHA, Atlantic Shores Bight must report the incident to NMFS by phone (866-755-6622) and by email (nmfs.gar.stranding@noaa.gov and PR.ITP.MonitoringReports@noaa.gov) as soon as feasible. The report will include the following information:

1. Time, date, and location (latitude/longitude) of the incident;
2. Species identification (if known) or description of the animal(s) involved;
3. Vessel's speed during and leading up to the incident;

4. Vessel's course/heading and what operations were being conducted (if applicable);
5. Status of all sound sources in use;
6. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
7. Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
8. Estimated size and length of animal that was struck;
9. Description of the behavior of the marine mammal immediately preceding and/or following the strike;
10. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
11. Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
12. To the extent practicable, photographs or video footage of the animal(s).

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts

affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analysis applies to all the species listed in Table 2, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. Where there are meaningful differences between species or stocks—as is the case of the NARW—they are included as separate subsections below. NMFS does not anticipate that serious injury or mortality will occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality is authorized. As discussed in the Potential Effects section, non-auditory physical effects and vessel strike are not expected to occur. NMFS expects that all potential takes will be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*, Southall *et al.*, 2007). Even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus will not result in any adverse impact to the stock as a whole. As described above, Level A harassment is not expected to occur given the nature of the operations, the estimated size of the Level A harassment zones, and the required shutdown zones for certain activities.

In addition to HRG activities being temporary, the maximum expected harassment zone around a survey vessel is 141 m. Although this distance is assumed for all survey activity in estimating authorized take numbers, in reality, the Applied Acoustics Dura-Spark 240 would likely not be used across the entire 24-hour period and across all 360 days. As noted in Table 5, the other acoustic sources Atlantic Shores Bight has included in their application produce Level B harassment zones below 60-m. Therefore, the ensonified area surrounding each vessel is relatively small compared to the overall distribution of the animals in the area and their habitat.

Feeding behavior is not likely to be significantly impacted as prey species are mobile and are broadly distributed throughout the survey area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Due to the temporary nature of the disturbance and the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

There are no known mating or calving grounds nor feeding areas known to be biologically important to marine mammals within the survey area. There is no designated critical habitat for any ESA-listed marine mammals in the survey area.

North Atlantic Right Whales

The status of the NARW population is of heightened concern and, therefore, merits additional analysis. As noted previously, elevated NARW mortalities began in June 2017 and there is an active Unusual Mortality Event (UME). Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of right whales. As noted previously, the survey area overlaps a migratory corridor BIA for NARW. Due to the fact that the survey activities

are temporary and the spatial extent of sound produced by the survey would be very small relative to the spatial extent of the available migratory habitat in the BIA, right whale migration is not expected to be impacted by the survey activities. Required vessel strike avoidance measures will also decrease risk of ship strike during migration; no ship strike is expected to occur during Atlantic Shores Bight's activities. The 500-m shutdown zone for right whales is conservative, considering the Level B harassment isopleth for the most impactful acoustic source (*i.e.*, sparker) is estimated to be 141-m, and thereby minimizes the potential for behavioral harassment of this species.

As noted previously, Level A harassment is not expected due to the small PTS zones associated with HRG equipment types authorized for use. The authorizations for Level B harassment takes of NARW are not expected to exacerbate or compound upon the ongoing UME. The limited NARW Level B harassment takes authorized are expected to be of a short duration, and given the number of estimated takes, repeated exposures of the same individual are not expected. Further, given the relatively small size of the ensonified area during Atlantic Shores Bight's activities, it is unlikely that NARW prey availability will be adversely affected. Accordingly, NMFS does not anticipate that any NARW takes resulting from Atlantic Shores Bight's activities will impact annual rates of recruitment or survival. Thus, any takes that occur will not result in population level impacts.

Other Marine Mammal Species with Active UMEs

As noted previously, there are several active UMEs occurring in the vicinity of Atlantic Shores Bight's survey area. Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (ship strike or entanglement). The UME does not yet provide cause for concern regarding population-

level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales.

The required mitigation measures are expected to reduce the number and/or severity of authorized takes for all species listed in Table 2, including those with active UMEs, to the level of least practicable adverse impact. In particular, they will provide animals the opportunity to move away from the sound source throughout the survey area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. As discussed previously, take by Level A harassment (injury) is considered unlikely, even absent mitigation, based on the characteristics of the signals produced by the acoustic sources planned for use. Implementation of required mitigation will further reduce this potential. Therefore, NMFS has not authorized any Level A harassment.

NMFS expects that takes will be in the form of short-term Level B behavioral harassment by way of brief startling reactions, temporarily vacating the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals would only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures will further reduce exposure to sound that could result in more severe behavioral harassment.

Biologically Important Areas for Other Species

As previously discussed, impacts from the authorized project are expected to be localized to the specific area of activity and only during periods of time where Atlantic Shores Bight's acoustic sources are active. While BIAs for feeding for fin and humpback whales as well as haul out sites for harbor seals can be found off the coast of New Jersey and New York, NMFS does not expect this action to affect these areas. This is due to the combination of the mitigation and monitoring measures being required of Atlantic Shores Bight as well as the location of these biologically important areas. All of these important areas are found outside of the range of this survey area, as is the case with fin whales and humpback whales (BIAs found further north), and, therefore, not expected to be impacted by Atlantic Shores Bight's survey activities.

Three major haul-out sites exist for harbor seals, inshore of the ECR Survey Area along New Jersey, at Great Bay, Sand Hook, and Barnegat Inlet (CWFNJ, 2015). As hauled outs are inshore and seals would be out of the water, no in-water effects are expected.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures;
- Foraging success is not likely to be impacted as effects on prey species for marine mammals from the activities are expected to be minimal;

- Alternate areas of similar habitat value are available for marine mammals to temporarily vacate the survey area during the planned activities to avoid exposure to sounds generated by surveys;
- Take is anticipated to be by Level B behavioral harassment only consisting of brief startling reactions and/or temporary avoidance of the survey area;
- While the survey area is within a noted migratory BIA for NARW , the activities will occur in such a comparatively small area such that any avoidance of the survey area due to activities would not affect migration; and
- The mitigation measures, including effective visual monitoring, and shutdowns are expected to minimize potential impacts to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activities on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS has authorized the incidental take (by Level B harassment only) of 15 marine mammal species (with 15 managed stocks). The total amount of takes authorized relative to the best available population abundance is less than 7 percent for all stocks (Table 9). Therefore, NMFS finds that small numbers of marine mammals may be taken relative to the estimated overall population abundances for those stocks.

Based on the analysis contained herein of the activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must evaluate our proposed action (*i.e.*, the issuance of incidental take authorization) and alternatives with respect to potential impacts on the human environment. This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

Endangered Species Act

Section 7(a)(2) of the ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species, in this case with the Greater Atlantic Regional Fisheries Office.

NMFS OPR is authorizing the incidental take of four species of marine mammals which are listed under the ESA, including the North Atlantic right, fin, sei, and sperm whale, and determined that this activity falls within the scope of activities analyzed in NMFS GARFO's programmatic consultation regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (completed June 29, 2021; revised September 2021). GARFO concluded site assessment surveys are not likely to adversely affect endangered species or adversely modify or destroy critical habitat. NMFS has determined issuance of the IHA is covered under the programmatic consultation; therefore, ESA consultation has been satisfied.

Authorization

As a result of these determinations, NMFS has issued an IHA to Atlantic Shores Bight authorized take, by Level B harassment, incidental to conducting site characterization surveys off New Jersey and New York from August 1, 2022 through July 31, 2023, that includes the previously explained mitigation, monitoring, and reporting requirements.

Dated: August 10, 2022.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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